A SCREENING TOOL FOR CLIMATE CHANGE POPULATION VULNERABILITY ASSESSMENTS

California Department of Public Health CDPH

CALIFORNIA ENVIRONMENTAL HEALTH TRACKING PROGRAM

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Presenter Disclosures

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(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

What is Climate Change Population Vulnerability Screening?

Determination of demographics or geographic locations of populations at highest risk for climate change threats (e.g. heat, flooding, sea level rise, wildfires, etc.)

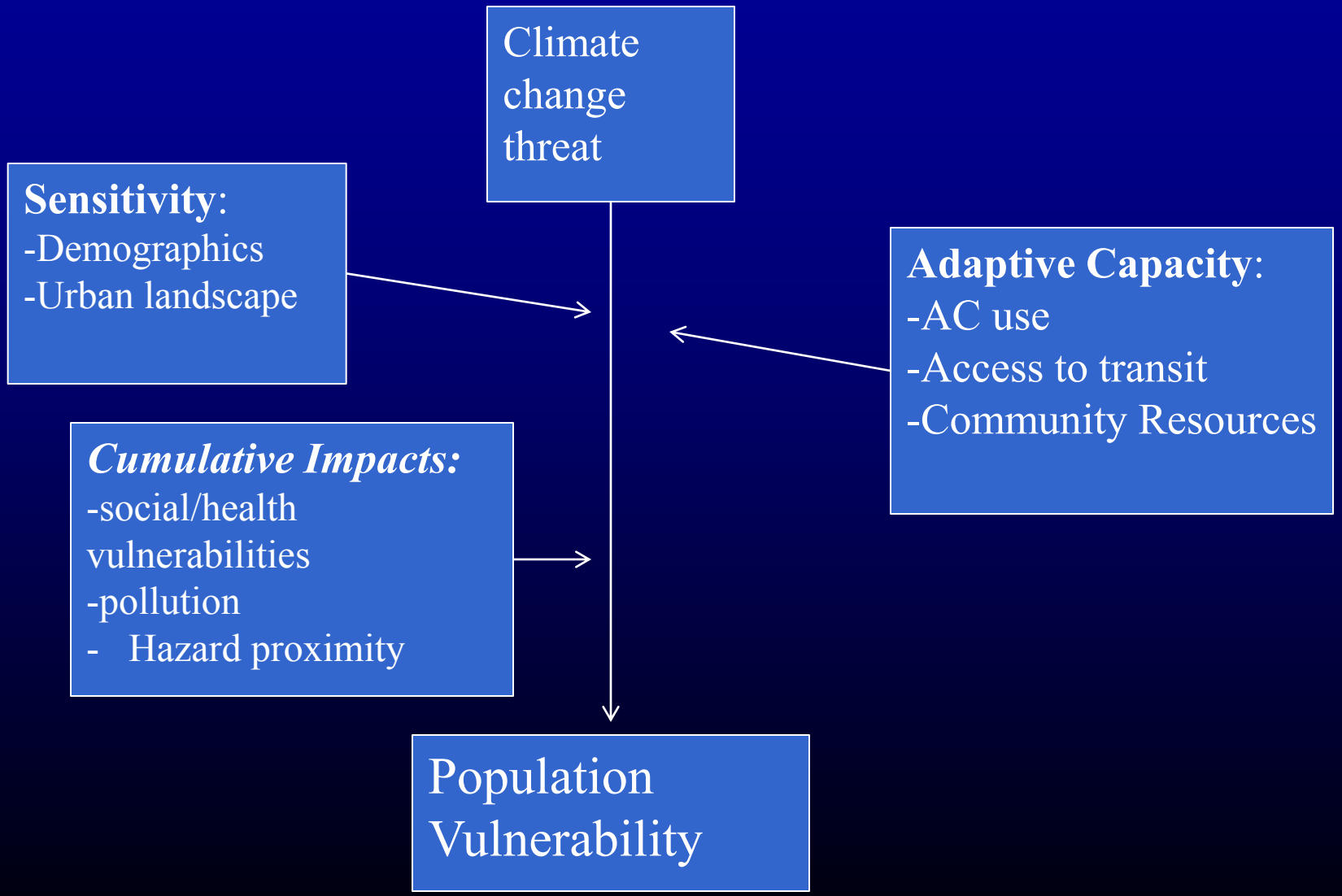
Why needed?

- To develop public health adaptation strategies for local communities
- To target specific mitigation activities (e.g. tree cover) in targeted areas

Some Previous Efforts

- Reid et al: U.S. Map of Heat Vulnerability (census tracts)
- Cheng/Newbold: Hamilton, Ontario (focused on low-income immigrants and elderly living alone)
- Houghton/Luber: Austin, TX (local vulnerability factors)
- Samson et al. Global vulnerability maps

Population Vulnerability Model




Study Areas
Hot, agricultural, heavily Hispanic
San Francisco
Fresno County
Los Angeles County
Pacific Ocean
Varied climate, multicultural, multiple CC risks
Los Angeles

Methods

- Start with Sadd, et al* method mapping cumulative impacts and social vulnerability (23 indicators) at census tract level:
  - 3 components:
    - hazard proximity and land use
    - air pollution exposure and health risk
    - social and health vulnerabilities

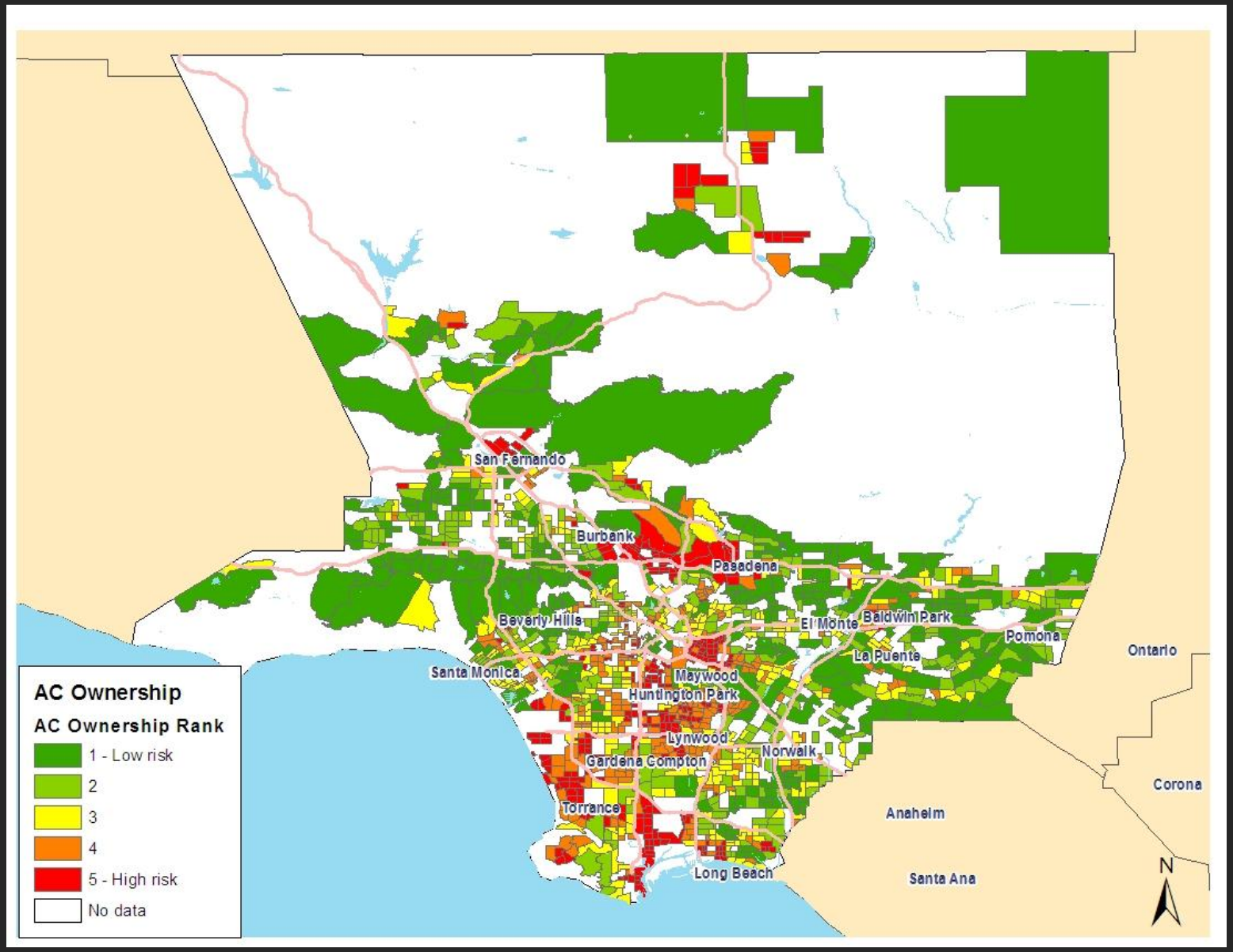
*Sadd et al., Int J Environ Res Public Health. 2011 May;8(5):1441-59

Methods (cont)

- Develop additional climate change vulnerability layer based on:
  - Central air conditioning ownership
  - Land cover (tree canopy and impervious surfaces)
  - Transit (car ownership and public transit access)
  - Wildfire risk
  - Flood risk
  - Elderly living alone
- Data were ranked by quintiles and mapped at census tract level

LA County Climate Change Vulnerability

RANK: Proportion of households with central AC



Fresno County Climate Change Vulnerability

Proportion of households with central AC